

WHAT IS CLAIMED IS:

1. A horizontal boring machine for boring cylindrical surfaces having horizontal axes and axially spaced apart from each other, such as the seats for an engine crankshaft in the crankcase of an internal combustion engine, including:

- a boring bar driven in rotation by a chuck and carrying at least one cutting bit, driving means for driving rotation of said chuck, means for axially moving the group composed of the chuck and the associated driving means, a counter-bar coupled in rotation head-to-head with said boring bar and driven in rotation by a respective auxiliary chuck, driving means for driving the rotation of the auxiliary chuck in synchronism with the rotation of the boring bar, means for axially moving the group composed of said counter-bar and the associated driving means, in synchronism with the axial movement of the boring bar, said boring bar being provided with a device for adjusting the radial position of said at least one cutting bit that is associated therewith,

wherein said counter-bar is also equipped with at least one cutting bit, whereby it constitutes an auxiliary boring bar, and is provided with means for radial adjustment of its cutting bit.

2. A boring machine according to claim 1, wherein both the main boring bar, and the counter-bar are each provided with a pair of diametrically opposed cutting bits, which are to work on the same cylindrical surface each time.

3. A boring machine according to claim 2, wherein each cutting bit is carried near the free end of a blade, the opposite end of which is fixed to the body of the associated bar and which is elastically deformable outwards due to the effect of a radial pin

carried by the free end of the blade engaging against a conical portion of a shaft sliding inside an axial cavity of said bar.

4. A boring machine according to claim 2, wherein  
5 the cutting bits of each pair are axially staggered with respect to each other.

5. A method for boring cylindrical surfaces having horizontal axes and axially spaced apart from each other, such as the seats for an engine crankshaft in  
10 the crankcase of an internal combustion engine, in which:

- a boring bar carrying at least one cutting bit and a counter-bar coupled in rotation head-to-head with said boring bar are inserted through a series of  
15 surfaces to be machined, from opposite ends of said series of surfaces,

- said boring bar and said counter-bar are simultaneously driven in synchronized rotation to perform the boring of each of said surfaces via the  
20 cutting bit, or the cutting bits,

- during the rotation of the bars, the groups carrying said boring bar and said counter-bar are moved axially in a simultaneous and synchronized manner to perform the machining of each cylindrical surface,

- said boring bar being equipped with a device for  
25 adjusting the radial position of the one, or each, cutting bit that is associated with it,

wherein the aforesaid counter-bar is also equipped with at least one cutting bit, whereby it constitutes  
30 an auxiliary boring bar that performs the boring of a surface different from the surface being worked by the cutting bit of the main boring bar.

6. A method according to claim 5, wherein said counter-bar is also equipped with means for radial adjustment  
35 of the cutting bit carried by the counter-bar.